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| APPLICATION NO.                   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.        | CONFIRMATION NO. |
|-----------------------------------|-------------|----------------------|----------------------------|------------------|
| 10/700,085                        | 11/03/2003  | Tze-chiang Chen      | YOR920030586US1<br>(17201) | 2805             |
| 23389                             | 7590        | 02/28/2005           | EXAMINER                   |                  |
| SCULLY SCOTT MURPHY & PRESSER, PC |             |                      | NGUYEN, CUONG QUANG        |                  |
| 400 GARDEN CITY PLAZA             |             |                      | ART UNIT                   | PAPER NUMBER     |
| SUITE 300                         |             |                      | 2811                       |                  |
| GARDEN CITY, NY 11530             |             |                      |                            |                  |

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |              |  |
|------------------------------|-----------------|--------------|--|
| <b>Office Action Summary</b> | Application No. | Applicant(s) |  |
|                              | 10/700,085      | CHEN ET AL.  |  |
|                              | Examiner        | Art Unit     |  |
|                              | Cuong Q. Nguyen | 2811         |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) 2,8-10,15-28 and 33-68 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3-7,11-14 and 29-32 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restriction***

1. Applicant's election without traverse of Embodiment I, claims 1, 3-7, 11-14 and 29-32 is acknowledged.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation "substrate comprises strained layers, unstrained layers or a combination thereof" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 3, 4, 5, 11, 12 and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by Bae et al. (US 6,633,066).

Regarding claims 1, 3, 4, 11, 12, Bae et al. discloses a semiconductor wafer comprising: a silicon (Si) substrate (20) (col.2 lines 36-40) performed silicon-on-insulators; a buried insulator layer (22) located on an upper surface of the substrate; an intermediate adhesion layer (18, an epitaxial silicon layer) located on an upper surface of the buried insulator layer; and a Ge-containing layer (16) located on an upper surface of the intermediate adhesion layer, wherein said Ge-containing layer is attached to the buried insulator layer by the intermediate adhesion layer. Fig.4E.

Regarding claim 5, as shown in Bae et al.'s Fig.4E, that the substrate comprises a combination of strained and unstrained layers.

Regarding claim 14, Bae et al. teaches that the Ge-containing layer has a thickness of 80 nm (col.7 lines 31-32).

Claims 1, 3, 4, 6, 7, 11, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Chu et al. (US 5,906,951).

Chu et al. discloses a semiconductor wafer comprising: a silicon substrate (26) performed silicon-on-insulators; a buried insulator layer (28, a non-crystalline silicon dioxide layer) located on an upper surface of the substrate; an intermediate adhesion layer (19, an epitaxial silicon layer) located on an upper surface the buried insulator layer; and a Ge-containing layer (18) located on an upper surface of the intermediate adhesion layer, wherein said Ge-containing layer is attached to the buried insulator layer by the intermediate adhesion layer. Fig.4.

Claims 1, 3, 4, 6, 7, 11, 12, 13 and 29-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Fitzgerald (US 6,677,655).

Regarding claims 1, 3, 4, 6, 7, 11, 12, 13, Fitzgerald discloses a semiconductor wafer comprising: a silicon substrate (308) performed silicon-on-insulators; a buried insulator layer (310, a non-crystalline silicon dioxide layer) located on an upper surface of the substrate; an intermediate adhesion layer (306, an epitaxial silicon layer) located on an upper surface the buried insulator layer; and a pure Ge layer (302) located on an

upper surface of the intermediate adhesion layer, wherein said Ge-containing layer is attached to the buried insulator layer by the intermediate adhesion layer. Fig.3D.

Regarding claims 29-32, Fitzegald teach that a monolithic optoelectronic integrated circuit including a si-containing circuit is formed on the semiconductor wafer (col.1 lines 9-23) lems one device or circuit located thereon. Fitzergald further teaches that the device is a Ge-photodetector (col.7 lines 30-40).

### **Conclusion**

4. Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 872-9306. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.
5. Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to CUONG Q NGUYEN whose telephone number is (571) 272-1661. The Examiner is in the Office generally between the hours of 6:30 AM to 5:00 PM (Eastern Standard Time) Monday through Thursday.
6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Eddie Lee who can be reached on (571) 272-1732.

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7. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center Receptionists whose telephone number is 308-0956.



Cuong Nguyen  
Primary examiner

2/15/05